



# Putting Research to Work

RD&T E-Newsletter, August 2004

Technical information for state DOT highway professionals

Prepared by CTC & Associates LLC

[WisDOT RD&T Home](#)

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## Research World

### New Airport Research Program Taking Off

Today's transportation professionals have the opportunity to affect the direction of TRB's new Airport Cooperative Research Program. Currently in its formative stages, the program will undertake research and technical activities in airport design, construction, maintenance, operations, security and other subjects. Problem statements are being accepted indefinitely; see <http://www4.nas.edu/trb/crp.nsf/reference/appendices/ACRP+Overview> for more information.

### Submit a Problem Statement for NCHRP Consideration

Have an idea for a research project? Sept. 15 is the deadline for states to submit problem statements for funding consideration by the National Cooperative Highway Research Program. Send research ideas to WisDOT Research Administrator Nina McLawhorn by September 10 for possible inclusion among the problem statements WisDOT will submit to NCHRP. See details at <http://www4.trb.org/trb/crp.nsf/Reference/Appendices/NCHRP+Problems>.

### New European Transportation Research Web Site Launched

The European Commission has launched the Transport Research Knowledge Centre Web site, which provides information on transportation research programs across Europe. Resources include searchable databases of government programs and research projects, a searchable links library, and an e-newsletter. Visit the site at <http://europa.eu.int/comm/transport/extra/>. Courtesy of the TRB E-Newsletter.

### 2020 Vision

The European Road Transport Research Advisory Council has published "Vision 2020 and Challenges"—its concept of how road transport should look in 2020. The document addresses issues including design, safety, mobility and the environment. Read the press release at [http://www.ertrac.org/pdf/news/ertrac\\_press\\_release\\_july\\_12.pdf](http://www.ertrac.org/pdf/news/ertrac_press_release_july_12.pdf), and download the document at [http://www.ertrac.org/pdf/publications/ertrac\\_brochure\\_june2004.pdf](http://www.ertrac.org/pdf/publications/ertrac_brochure_june2004.pdf).

### Comments Welcome on New Pavement Design Guide

The new NCHRP Mechanistic-Empirical Pavement Design Guide for new and rehabilitated pavements and structures, which updates the 1993 AASHTO guide, has entered its comment-solicitation phase. Review the guide at <http://www.trb.org/mepdg/guide.htm>. Workshops are also planned for the guide; see <http://www.fhwa.dot.gov/pavement/dgittime.htm>.

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To receive notice of **Putting Research to Work** each month, e-mail [wisdotresearch@dot.state.wi.us](mailto:wisdotresearch@dot.state.wi.us).  
Previous issues are available at <http://www.dot.wisconsin.gov/library/publications/format/newsletters/rdt.htm>.

Other e-newsletters for transportation professionals:

**TRB E-Newsletter** from the Transportation Research Board: <http://gulliver.trb.org/news/>.

**The AASHTO Journal** from the American Association of State Highway and Transportation Officials: <http://www.transportation.org/publications/journal.nsf>.

**CTS Research E-News** from the University of Minnesota: <http://www.cts.umn.edu/publications/enews/>.

**Texas Transportation Researcher** from TAMU's Texas Transportation Institute: <http://tti.tamu.edu/researcher/>.

**Austroads Newsletter** from Austroads: [http://www.austroads.com.au/austroads\\_newsletter.html](http://www.austroads.com.au/austroads_newsletter.html).

**Transportation Communications Newsletter**: <http://finance.groups.yahoo.com/group/transport-communications/>.

# Designing for the Future

## WisDOT Roundabout Design Will Aid Visually Impaired Pedestrians

A new roundabout in Wisconsin Rapids will incorporate features to help the visually impaired, such as tactile warning fields, directional grooving and crosswalks that go through refuge islands instead of over them. Part of a WIS 54/73 improvement project, the roundabout will improve safety at the intersection, which is currently not designed to accommodate turning movements of large trucks and buses. Read more at <http://www.dot.wisconsin.gov/projects/d4/wis54/round.htm>.

## Architectural Touches Add Distinction to WisDOT Bridge Projects

WisDOT District 1's reconstruction of US 12 will provide individualized aesthetic design themes for both Middleton and Sauk City. The design concept for the rehabilitated bridge over the Wisconsin River in Sauk City features architectural elements that suggest the early days of the village, including a pedestrian overlook with decorative railings and lampposts, and pillars with the village's name. Middleton will gain 12 new bridges with aesthetic treatments such as simulated limestone facing. See <http://www.dot.wisconsin.gov/projects/d1/us12/design.htm>.

## Environmental Justice: Analyzing a Road's Social Impacts

A Mississippi River bridge's effect on the surrounding community is analyzed as part of a new Missouri DOT report on environmental justice and social impact assessment. Begun during the mid-1990s, the Bill Emerson Memorial Bridge project involved converting a road approaching the bridge from a city street to a limited-access roadway, splitting a minority neighborhood in two. The bridge case study begins on page 126 of the report, available at <http://168.166.124.22/RDT/reports/Ri02012/RDT04020.pdf>. Courtesy of the TRB E-Newsletter.

## Strategies for Corridor Management

Poor access management on a roadway can lead to reduced travel speeds and high crash rates. Researchers for Iowa DOT studied two highways with urban, rural and "fringe" segments and recommended new corridor management policies, including retrofitting some urban segments. Strategies include consolidating driveways, adding raised medians, installing turn lanes and removing traffic signals. View the report at [http://www.ctre.iastate.edu/reports/corridor\\_mgmt.pdf](http://www.ctre.iastate.edu/reports/corridor_mgmt.pdf).

## Stream Restoration Fund Streamlines Wetlands Mitigation

Rather than requiring wetlands mitigation at the project level, Tennessee DOT has created a fund to use for "in lieu fee" mitigation projects identified by state and federal agencies. This saves TDOT time in locating meaningful mitigation sites and simplifies interagency approvals. Read more about states' programmatic approaches to wetlands mitigation in FHWA's latest "Successes in Streamlining" newsletter at <http://environment.fhwa.dot.gov/strmlng/newsletters/jul04nl.htm>.

## Florida County Tests Digital Sensor for Orthophotos

When a Florida county's appraiser's office needed updated orthophotos of the entire county, the staff decided to use a digital sensor rather than the aerial photography used in previous years. The sensor delivered the necessary accuracy, and consultants were able to deliver the imagery several times faster than would have been possible with traditional film images. Read more in *Directions* magazine at [http://www.directionsmag.com/article.php?article\\_id=605](http://www.directionsmag.com/article.php?article_id=605).

## A Sight to See: Observatory Enriches Bridge's Design

In building a new cable-stayed bridge over the Penobscot River, Maine DOT is considering how the bridge's towers could enhance its design. The latest proposal includes an elevator leading to an observatory atop one of the bridge's pylons, which the department hopes will become a local attraction. Read about this project and other state DOT innovations in this *Public Roads* article, which also spotlights WisDOT's work on the Marquette Interchange: <http://www.tfhr.gov/pubrds/04may/06.htm> (scroll to "Maine"; states are in alphabetical order).

# Construction and Materials Innovations

## Wisconsin Concrete Rep Studies Paving in Europe

*Concrete Pavement Progress*, the American Concrete Pavement Association quarterly, reported in July on a scan tour of quiet, durable exposed aggregate concrete pavements in Europe. Representing the concrete industry was the head of the Wisconsin ACPA chapter, Kevin McMullen. Register for the free e-mail-only journal at <http://www.pavement.com/CPP/cppregistration.html>.

## Wisconsin Demo Shows Concrete Can Be Poured in Cold

A recent FHWA pooled fund research project on cold-weather concrete work included five demonstration pours in Wisconsin and New Hampshire. While no single commercial admixture provides enough freeze protection for cold-weather work, several in the same batch can lower the acceptable temperature for pouring to 23 F, potentially extending the Wisconsin concrete season by two months. Read more in the latest issue of *TR News* at <http://gulliver.trb.org/publications/trnews/trnews232rpo.pdf>.

## New Mexico Drivers Put Smart Bridge to Test

The “smart bridge” we reported on in our April 2004 issue opened to traffic in mid-July in Las Cruces, N.M. A university professor and the state DOT embedded fiber-optic sensors in the concrete structure that will relay structural data for maintenance and repair purposes. See [http://www.nmsu.edu/~ucomm/Releases/smart\\_bridge\\_release.html](http://www.nmsu.edu/~ucomm/Releases/smart_bridge_release.html), and contact New Mexico State University Prof. Rola Idriss ([ridriss@nmsu.edu](mailto:ridriss@nmsu.edu)) or NMSHTD project manager Aaron Chavarria ([aaron.chavarria@nmshtd.state.nm.us](mailto:aaron.chavarria@nmshtd.state.nm.us)) for more information.

## Indiana Tests Rolling Wheel Deflectometer

Indiana DOT in July began pilot testing FHWA’s prototype rolling wheel deflectometer. The RWD, described in *Public Roads* in January (<http://www.tfhr.gov/pubrds/04jan/04.htm>), measures deflection with lasers, and unlike the falling weight deflectometer, requires no lane closures. Tests will be conducted soon in Pennsylvania, Virginia and Mississippi; the equipment was already tested in Texas in 2003. Contact Max Grogg at FHWA ([max.grogg@fhwa.dot.gov](mailto:max.grogg@fhwa.dot.gov)), or Khaled Galal at INDOT ([kgalal@indot.state.in.us](mailto:kgalal@indot.state.in.us)) for more information.

## The Latest in Bridge Maintenance, Construction and Design

FHWA’s July issue of *Focus* features three articles on recent developments in bridge preservation and design. One describes an international scan tour for bridge maintenance and preservation practices, including flexible inspection schedules and protective deck membranes. The others report on the national adoption of AASHTO’s Load and Resistance Factor Design specifications, and on steel bridge resources and practices. See <http://www.tfhr.gov/focus/july04/index.htm>.

## Colorado Attributes Top-Down Cracking in HMA to Pavers

Colorado DOT researchers have identified a correlation between top-down cracking problems in hot-mix asphalt and segregation induced by pavers during construction. This summer, contractors on HMA paving projects will retrofit their pavers with anti-segregation systems and take transverse density profile measurements in an attempt to identify hidden paver segregation during paving. Read more on page 3 of the latest CDOT Research Newsletter at <http://www.dot.state.co.us/Research/2004-2.pdf>.

## Texas Takes on Exploding Pavements and Wins

The Texas Transportation Institute recently reported on its research on exploding pavements. With time and moisture, calcium-based stabilizers like lime react with sulfate-rich soils, leading to soil expansion and heave. Through quick, on-site soil testing, engineers and builders can turn to alternative stabilizers, preventing the very expensive phenomenon. See <http://tti.tamu.edu/researcher/newsletter.asp?vol=40&issue=2&article=8>.

## Operating/Optimizing the System

### All-Terrain Vehicles Damaging Roadsides

Wisconsin and Michigan DOTs report increasing instances of people riding ATVs within highway rights of way. In addition to creating safety hazards, officials say the practice causes severe erosion problems from loss of vegetation. David Vieth, WisDOT Bureau of Highway Operations director, says roadside vegetation often includes threatened or endangered plant species and serves as habitat for small animals and nesting birds. Read press releases from the DOTs at <http://www.dot.wisconsin.gov/news/news/2004general/opa-atv139.htm> and <http://www.michigan.gov/mdot/0,1607,7-151-9620-97888--,00.html>.

### Wisconsin Visibility Conference Presentations Online

Did you miss the National Highway Visibility Conference at the University of Wisconsin-Madison this May? No problem. Catch up on what you missed or review what you heard at the conference Web site, where presentation slides from the two-day conference sponsored by WisDOT and FHWA are available. See <http://www.topslab.wisc.edu/resources/nhvc.htm>.

### VDOT Headed for One-Stop Sign Shop

Virginia DOT is revamping the way it handles directional signage, creating a one-stop sign program that encompasses the department's four categories of signs. The Integrated Directional Sign Program, which is nearing its final stages of development, will include travel services signs, tourist-oriented directional signs, supplemental guide signs and general motorist service signs. Learn about the new program at <http://www.virginiadot.org/infoservice/sign-default.asp>.

### Battling Old Man Winter: Symposium Papers Online

Papers and presentations from the Sixth International Symposium on Snow Removal and Ice Control Technology, held June 7 to 9 in Spokane, Wash., are now available on the TRB Web site. From Finnish weather information systems to snow and ice control toolboxes to predicting bridge frost, virtually every angle of winter highway maintenance is covered. See <http://trb.org/publications/circulars/ec063.pdf>. Courtesy of the TRB E-Newsletter.

### WSDOT's Quarterly Measures Improve Operations Efficiencies

Tracking transportation operations measures such as worker safety, incident response and trip reliability has helped Washington DOT identify inefficiencies in how it deals with congestion. The quarterly *Measures, Markers and Mileposts*, also known as the Gray Notebook, has helped officials understand what's happening on the roads and improve the way they do business. Read about the program in the Newsletter of the ITS Cooperative Deployment Network at [http://www.nawgits.com/icdn/wsdot\\_measures.html](http://www.nawgits.com/icdn/wsdot_measures.html).

### CDOT, Corporations Team Up to Keep Highways Clean

Colorado companies have just been afforded a new opportunity to be good corporate citizens. To reduce the cost of cleaning up the state's roadways, Colorado DOT has contracted with a private company to manage the department's Sponsor a Highway program at no cost to the state. The new sponsorship program recognizes companies for their contributions with signs along sections of Colorado highways, while their dollars pay for litter removal. Read the press release at <http://www.dot.state.co.us/Communications/news/Stwide20040714-1.htm>.

### Three Virginia Cities Take the Reins on Road Construction Projects

In an effort to "strengthen local and regional decision making," Hampton, Richmond and Virginia Beach have taken over management of local road construction projects from Virginia DOT. This is the first year local municipalities have had this opportunity; in the past, VDOT managed all aspects of road projects. Read about the change in *Roads & Bridges* magazine at <http://www.roadsbridges.com/rb/index.cfm?powergrid=rfah=|cfap=&CFID=5366093&CFTOKEN=82077221&fuseaction=showNewsItem&newsItemID=7372>.

## Safe Travel/Smart Travel

### Laboratory Is 'TOPS' for Operations Services, Research

The Wisconsin Traffic Operations and Safety (TOPS) Laboratory is a unique organization dedicated to improving traffic operations and safety in Wisconsin and across the Midwest through a diverse balance of service partnerships, research and training. The lab is actively seeking public and private sector partners to achieve its mission. See <http://www.topslab.wisc.edu/index.htm>.

### New Emphasis on Crash Avoidance Technology

Seeking to reverse a troubling rise in highway deaths, federal auto safety regulators are shifting their focus from safety features that allow occupants to survive crashes to emerging technology that will help drivers avoid deadly accidents altogether. From *The Detroit News*: <http://www.detroitnews.com/2004/autosinsider/0407/18/a01-215518.htm>.

### Major Update for National ITS Architecture Web Site

U.S. DOT's ITS Joint Program Office has updated its National ITS Architecture Web site to improve coverage of transportation security, including updates to the physical architecture, market packages, logical architecture and supporting documentation. Version 5.0 also includes a new disaster response and evacuation user service, which supports disaster recovery activities. See what's new at <http://www.iteris.com/itsarch/html/whatsnew/whatsnew.htm>.

### High-Sensitivity GPS/AGPS Chipset

Fujitsu Microelectronics Europe has announced a two-chipset solution for high-sensitivity GPS/Aided GPS receivers capable of indoor acquisition. FME says it is versatile in that a receiver can be initially developed as an autonomous GPS receiver and subsequently upgraded with software to Aided GPS when assistance becomes available. From *ITS International*: <http://www.itsinternational.com/news/article.cfm?recordID=6269>.

### Safety Council Will Promote Tire Monitoring Systems

The British Columbia Safety Council has agreed to market SmarTire pressure monitoring systems during its motorcycle, fleet and corporate driver training courses. SmarTire develops proprietary advanced tire pressure monitoring and technology systems for the automotive and transportation industries. Link to the press release: [http://www.smartire.com/pdf/newsreleases/STSNews\\_July\\_21\\_2004.pdf](http://www.smartire.com/pdf/newsreleases/STSNews_July_21_2004.pdf).

### Operational Improvements for Traffic Circles

New Jersey DOT and several other state DOTs are exploring effective operational alternatives for enhancing the safety and efficiency of traffic circles built in the early 1900s. Their hope is to find solutions that are less costly than constructing alternative intersections. Read more at TRB's Research in Progress site: <http://rip.trb.org/browse/dproject.asp?n=9722>.

### Study Explores the Marketing of Advanced Driver Training

The United Kingdom's Royal Society for the Prevention of Accidents is undertaking research to learn how to persuade new drivers to go the extra mile for safety by taking advanced training courses. From *CARkeys* magazine: [http://www.carkeys.co.uk/news/2004\\_july/14/3729.asp](http://www.carkeys.co.uk/news/2004_july/14/3729.asp).

### Major Funding for ITS in New Zealand

Transit New Zealand has announced plans to spend almost \$100 million over the next five years on nationwide ITS systems designed to improve the flow of traffic. From *The New Zealand Herald*: <http://www.nzherald.co.nz/storydisplay.cfm?storyID=3580473&thesection=business&thesubsection=technology>.